

REMARKS

Applicants' counsel thanks the Examiner for a very careful and thorough examination of the present application, and appreciates the indication of allowable subject matter in claims 19, 20 and 26.

Claim 19 has been rewritten in independent form without changing the scope of that claim; hence claim 19 now is in condition for allowance.

Claim 1 also has been amended to substantially incorporate the subject matter of claim 8, which has been canceled. Claim 9 has been canceled without prejudice. New claims 37-46 have been added to recite additional novel features of the present invention (basis can be found at para. [0023] and in the claims as filed). Also, subject matter not essential to the patentability of claim 1 has been canceled from that claim and moved to new dependent claim 38. Other minor amendments have been made to pending claims 2 and 7. No new matter has been introduced in the application.

Claim 8, now incorporated into claim 1, was rejected under 35 USC § 102(b) as being anticipated by each of Davis, Lynn and Spears. Each of these rejections respectfully is traversed for the reasons set forth below.

The limitations of claim 8, now incorporated into claim 1, provide the foam layer is "deformable to accommodate a particular shape and contour to which the heat shield is to be bent and to generally conform in use, without substantially damaging the cellular structure of the foam as a result of such deformation." In practice, after the heat shield of claim 1 is fabricated, it is bent to conform to the contour of, e.g., an automobile body panel, and the foam layer is deformable so that it can be bent to accommodate that contour without substantially damaging its cellular structure as a result of such deformation. This physical characteristic of the foam now recited in claim 1 presents a novel heat shield structure that is not disclosed or suggested in any of the cited references.

With regard to Davis, the Examiner has cited figures 3 and 6 as teaching a "deformable" foam. Respectfully, neither of those figures discloses a deformable foam. Conversely, the foam in Davis is a "rigid" foam as indicated throughout the Davis patent. See, e.g., col. 2 lns. 1-3 ("[t]he present invention [uses] multiple sections of rigid foam duct in the assembly of [an] air duct system,"); col. 3 lns. 36-40 ("the outer shell and the inner shell must not impair the...rigidity

characteristics [of the foam,]"). See also col. 5 lns. 1-2 referring to "the rigid foam duct system 10 of the present invention." The duct cross-section shown in Fig. 3 does show a foam core 28 in an annular configuration. However, this foam was not deformed to provide this shape, rather it was molded (i.e. originally formed) in this shape. See col. 5 of Davis beginning at line 6, where the method of molding a duct segment in the desired configuration is described. In summary, a mold is prepared which includes inner and outer molds, and the foam precursors ("Part A and Part B" at col. 5 ln. 10) "are then mixed...and poured into the cavity to form the segment or fitting." Thus, it is not evident from Davis that the resulting foam section is "deformable" as recited in claim 1. On the contrary, Davis teaches away from using a deformable foam as explained above. Hence, claim 1 as amended patentably defines over Davis.

Regarding, Lynn, the Examiner has admitted this reference does not specifically disclose the foam as being flexible, but argues this property would have been inherent in the structure described in Lynn. To the contrary, Lynn expressly discloses the foam layer or "core" cited by the Examiner is "made from a rigid base plastic material such as HDPE and rigid PVC." Col. 3 lns. 36-38. Hence, like Davis this reference also not only does not disclose a foam that is deformable as in claim 1, but in fact teaches away from a foam having this property. The Examiner cannot infer a physical property to be inherent in the structure of a reference when that structure is explicitly described to exclude that property. Accordingly, claim 1 now patentably defines over Lynn.

Regarding Spears, the Examiner's position is:

Spears does not specifically disclose the foam being flexible [assumed to refer to the foam being "deformable" as recited in claim 1].... However, the claims are completely silent as to what is made of the foam layer and the composite panel of Spears meets all the structural limitations as required by the claims. Therefore, it is not seen that the foam of Spears would have performed differently than that of the present invention in terms of flexibility.... It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete.

Office action, page 8.

Respectfully, the Examiner's interpretation of the claim is incorrect. The foam layer being "deformable" as recited in claim 1 is a limitation on the structure of that claim. To

anticipate claim 1 as amended, Spears would need to teach a foam layer whose structure produces the same "deformable" characteristics recited in claim 1. The Examiner essentially has argued this property must be inherent in the prior art or otherwise claim 1 is incomplete. The confusion seems to have resulted because the "deformable" feature is recited in functional rather than structural terms. However, this mode of claiming is appropriate because the exact physical make-up of the foam itself, in terms of its exact chemistry, cell structure, etc., is not critical to the invention so long as the foam behaves as claimed in the heat shield.

Contrary to the Examiner's indication that functional language may make claim 1 incomplete, the law is clear that there is nothing wrong with claiming a product in functional terms.

We take the characterization "functional", as used by the Patent Office and argued by the parties, to indicate nothing more than the fact that an attempt is being made to define something (in this case, a composition) by what it does rather than by what it is (as evidenced by specific structure or material, for example). In our view, **there is nothing intrinsically wrong with the use of such a technique in drafting patent claims**. Indeed we have even recognized in the past the practical necessity for the use of functional language.

In re Swinehart, 58 CCPA 1027, 1030, 169 USPQ 226 (Ct. of Cust. and Pat. App. 1971) (emphasis supplied).

See also *In re Schreiber*, 128 F.3d 1473, 1478, 44 USPQ 2d 1429 (Fed. Cir. 1997), citing *In re Swinehart supra*: "A patent applicant is free to recite features of an apparatus either structurally or functionally."

See also MPEP §§ 2114 and 2173.05(g), explaining there is nothing wrong with claiming a product functionally. "A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." MPEP § 2173.05(g).

The Examiner has cited *Ex parte Slob*, 157 USPQ 172 (Pat. Off. Bd. of App. 1967) to support the position that the "deformable" limitation now recited in claim 1 may render the claim incomplete (indefinite?) if that limitation is to be separately construed. To the extent this case might imply functional limitations are improper or somehow render a claim incomplete, it has been overruled by both the CCPA and Federal Circuit cases cited above. See also the cited MPEP sections regarding the patentable weight to be afforded functional limitations in product claims.

Returning to claim 1, the foam being "deformable" as recited in claim 1 is a "feature of [the] apparatus" in that claim (*cf. In re Schreiber supra*) that is entitled to patentable weight. As the Examiner has indicated, Spears nowhere discloses or suggests a foam being "deformable" as now recited in claim 1. Regarding the Examiner's inherency argument, there are myriad foam compositions which may or may not produce the "deformable" characteristics recited in claim 1, and no indication is given in Spears exactly what composition is used therein or whether it does or does not have such properties. Certainly there is no basis to surmise the foam used in Spears would necessarily inherently be "deformable" as recited in claim 1. Accordingly, claim 1 as amended now patentably defines over Spears.

The Examiner also has rejected claim 4 as being anticipated under 35 USC § 102 by each of DE'657, Seibert, Davis, Spears and Lynn. In every case, the Examiner has acknowledged the references do not "specifically disclose" the features of the foam as recited in claim 4, and has relied on the same inherency argument noted above based on *Ex parte Slob*. Respectfully, like the "deformable" limitation in claim 1, the ability of the foam to withstand the recited temperature and to dampen tonal frequencies "below 2000 Hz" also are "features of [the] apparatus" that limit its structure and are entitled to patentable weight as explained above. The Examiner has cited *In re Spada*, 15 USPQ 2d 1655 (1990) for the proposition that "products of identical chemical composition cannot have mutually exclusive properties." Office action, page 6. Respectfully, no comparison of chemical composition with claim 4 is possible because no chemical composition is recited in claim 4 (or in claim 1 from which it depends). Therefore, absent some teaching that the foam layer in any of the references has the properties recited in claim 4, none of them can be used to anticipate claim 4. Accordingly, it is respectfully submitted that claim 4 is independently patentable over the cited references.

Claim 6 also has been rejected under 35 USC § 102 as being anticipated by various ones of the foregoing references. However, in all cases the Examiner has acknowledged none of the references teaches the characteristics of the foam recited in claim 6, and has relied on a similar inherency/*Ex parte Slob* argument as above. As already discussed, such a rejection is improper because applicants are entitled to claim their invention in functional terms, particularly where it is the most practical way to claim the invention. Accordingly, it is respectfully requested the Examiner reconsider and withdraw the rejection of claim 6.

Claim 24 has been rejected under 35 USC § 102 as being anticipated by each of Seibert, Holtrop and Lohmar. Claim 24 recites a laminate structure including "a metallic outer layer, a semi-rigid foam layer made from a first foam material adhered to said metallic outer layer, and a foam layer absorber made from a second foam material, dissimilar to the first foam material, adhered to said semi-rigid foam layer opposite the metallic outer layer."

Seibert discloses a [metal - foam - metal - foam] structure as evidenced, e.g., in the Abstract as well as in claim 1 of that patent. Conversely, in claim 24 a second dissimilar foam material is adhered to the semi-rigid foam layer; i.e. the dissimilar foam layers are in contact with one another. In Seibert, the foam layers are separated by an intermediate metal layer. Accordingly, Seibert does not anticipate claim 24 and it is respectfully requested this rejection be withdrawn.

Holtrop discloses a laminate structure including a plurality of thermoplastic layers 12, 13 and 14, and a "sheet of paper, fabric or thermoplastic film 21...adhesively bonded to the outer surface 18 of the first layer 12 and a second such sheet 22...adhesively bonded to the outer surface 19 of third layer 14." Col. 4 lns. 7-10; see also Fig. 1. Holtrop nowhere discloses or suggests the "metallic outer layer" recited in claim 24, and the rejection thereover has been overcome.

Lohmar discloses a laminate structure comprising, in order, a metal sheet/wall 1, a "so-called spring" layer 4,5 composed of polyurethane soft foam, a mass layer 6 of filled plastics, a "decoupler" layer 7 of soft elastic material which can be a foam, and a carpeting layer 8. See col. 4 lns. 14-22, and lns. 35-40 regarding the "decoupler" layer. The only two foam layers in Lohmar, spring layer 4,5 and decoupler layer 7, are separated by intermediate mass layer 6. The mass layer 6 is described as a filled plastics layer; nowhere does Lohmar indicate this layer is or can be a foam layer. Conversely, in claim 24 the second foam material layer is adhered to the semi-rigid foam layer without any intervening layer therebetween. Hence, the rejection of claim 24 over Lohmar also has been overcome.

In summary, none of the applied references discloses the structure recited in claim 24. Accordingly this claim now is submitted as being in condition for allowance.

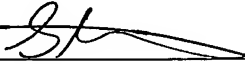
Claim 27 has been rejected under 35 USC § 102 as being anticipated by each of Seibert, Holtrop and Lohmar. Claim 27 incorporates the heat shield of claim 1 by reference, and

therefore now is believed also to be allowable at least for the same reasons as claim 1 discussed above.

In view of all the foregoing, it is respectfully submitted that claims 1, 4, 6, 24 and 27 now are in condition for allowance. In addition, claim 19 has been rewritten in independent form and is now allowable as indicated by the Examiner. All remaining claims are dependent claims and should also be allowable by virtue of their dependence on an allowable base claim.

If there are any required fees that are not covered by the enclosed check, please charge said fees to our Deposit Account No. 16-0820, Order No. 35691US1.

Respectfully submitted,
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Date: April 27, 2005